**WLPCS Calculus Syllabus 2017-18**

Mr. Michael T. Davis, [mdavis@latinpcs.org](mailto:mdavis@latinpcs.org)

**About Calculus**

What is Calculus? It is very difficult to answer this question until you have completed the course. Hopefully, at the end of the course, you will be able to provide me an answer to this question. Calculus is a body of concepts, principles, procedures and skills that will be learned and understood only if you work hard, exert a genuine effort, do your homework every day, practice the material regularly, and seek help outside of class on a regular basis. Calculus is not learned casually; rather it takes persistence, perseverance, tenacity and determination. Calculus calls upon you to remember and apply all the earlier math concepts & skills you have learned, i.e. Pre-Algebra, Algebra I, Geometry, Algebra II, Trigonometry, and Pre-Calculus. Learning Calculus calls upon you to be patient with me and with yourself. When the going gets tough, you should double your effort rather than retreat and give up. Calculus can be cool, interesting and fun, but you have to give it a chance. As you master the material, you will feel better about yourself, and you will have the confidence to keep moving forward. You may have to attend math tutorial routinely throughout the year. You and I will work together to make this a successful, fun and fulfilling year in Calculus class.

**Course Content & Topics**:

**Unit 1:** Linear Functions, Functions Defined in Pieces, Absolute Value Functions, Composite Functions, Exponential Functions, Parametric Equations, One-to-One Functions, Inverses Functions, Logarithmic Functions, Trigonometric Functions, Radian Measure, Inverse Trig Functions, Graphing Functions.

**Unit 2:** Rates of Change, Limits Involving Infinity, End Behavior, Continuity, Continuous Functions, Discontinuous Functions, Intermediate Value Theorem, Tangent Lines, Average Rate of Change, Slope of a Curve, Normal to a Curve, Speed

**Unit 3:** Derivative of a Function, Definition of Derivative, Relationship Between the Graphs of  and , One-Sided Derivatives, Differentiability, How  might fail to exist, Differentiability Implies Local Linearity, Derivatives on a Calculator, Differentiability Implies Continuity, Intermediate Value Theorem for Derivatives, Rules for Differentiation, Velocity, Acceleration, Instantaneous Rates of Change, Motion Along a Line, Derivatives of Trigonometric Functions

**Unit 4:** Chain Rule, Slopes of Parametric Curves, Implicit Differentiation, Derivatives of Higher Order, Rational Powers of Differential Functions, Derivatives of Inverse Trigonometric Functions, Derivatives of Exponential & Logarithmic Functions

**Unit 5:** Extreme Values of Functions, Mean Value Theorem, Increasing & Decreasing Functions, Connecting  and  with the Graph of , First Derivative Test for Local Extrema, Concavity, Points of Inflection, Second Derivative Test for Local Extrema, Modeling & Optimization, Linearization, Linear Approximation, Related Rates

**Unit 6:** Estimating Finite Sums, Distance Traveled, Rectangular Approximation Method (RAM), Volume of a Sphere, Definite Integrals, Riemann Sums, Area, Integrals of Constant Functions, Integrals on a Calculator, Definite Integrals & Antiderivatives, Average Value of a Function, Mean Value Theorem for Definite Integrals (MVTDI), Connecting Differential & Integral Calculus, Fundamental Theorem of Calculus, Analyzing Antiderivatives Graphically

**Unit 7:** Evaluating integrals by Substitution, Substitution in Indefinite Integrals, Substitution in Definite Integrals

**Unit 8:** Integral as Net Change, Linear Motion Revisited, Area in the x-y Plane, Volume

**Required Daily Supplies**

* **A graphing calculator is ABSOLUTELY REQUIRED for this course.** Each student must have his/her own graphing calculator each day.
* A dedicated Calculus notebook for notes and in-class practice problems.
* A three-ring binder or folder for storing handouts and organizing materials for each unit.
* Pencil or pen.
* Loose-leaf paper for quizzes and problems to be handed in.
* A textbook that will be left in the classroom at all times.

**Grading Configuration:**

* Attitude, Behavior, Participation 15%
* Homework 15%
* Wind-Downs 10%
* Quizzes, DBQ’s, Socratic Seminars 35%
* Tests 25%

**Attitude/Behavior/Participation**

You have the potential to earn a daily attitude/behavior/participation grade consisting of eight points. The number of attitude/behavior/participation points you receive each day will depend on the criteria listed below. If you are late, you lose one point. If you are not in dress code, you lose one point. If your lateness causes you to miss the warm-up, you lose one point. If you are uncooperative or disrespectful, you can lose up to 3 points depending on your behavior.

* Arriving to class on time (1 point)
* Not using your cell phone during class and placing it in your designated pocket (1 point)
* Adhering to the school dress code (1 point)
* Working quietly on the warm-up problems at the start of class (1 point)
* Having required materials with you in class (being prepared) (1 point)
* Exerting effort, participating in activities, listening to explanations, being focused, staying on task, having a good attitude, behaving appropriately, not talking out of turn, being polite, being courteous, and respecting peers & Mr. Davis (3 points)

**Unit Tests**

You will take a major test (summative assessment) about every four weeks. My goal is to administer two tests per quarter. Tests take an entire 45-minute period and cover a large amount of material. There are no retakes for tests in the same way there are retakes for quizzes.

**Quizzes**

You will take one quiz for every section or two sections that we cover in the textbook. If you are absent on a quiz day, then you are responsible for taking the missed quiz on one of the two days upon your return to class. You will need to take the missed quiz during the tutorial period. If you do not take the missed quiz within two class days, you receive a zero for the missed quiz. For each quiz, you may take a 2nd quiz. I will replace the 1st quiz grade with the 2nd quiz grade (up to a maximum of 85%) if the 2nd quiz grade is higher than the 1st.

**Warm-Ups & Wind-Downs**

**Warm-Up:** When you arrive to class, you should sit quietly and work the Warm-Up problems on the board. You may discuss these quietly with a neighbor, seek help from a classmate, and work together on the problems. You may ask me for help. It is an essential part of starting class and getting into the groove of problem solving. It’s a great way to see if you know the material. You receive a participation point for this work. **Wind-Down:** Usually in the last 5-minutes of class, you will work the Wind-Down problems quietly on your own. You may not discuss these problems or ask anyone for help. I will grade the Wind-Down problems each night. The Wind-Down problems are worth 5 points for the set.

**Homework**

Credit will be given for each homework assignment that is completed on time. Credit will not be given for any homework assignment turned in late or not done on time. If you are absent, you are responsible for showing me the homework assignment that was due on the day you were absent. Please consider that homework can be approached in two distinct ways. A student can dedicate adequate time, effort, thought, patience and care to answer homework questions with work displayed neatly and process detailed clearly. Or, a student can spend very little time, exert minimal effort, show little or no work, and/or write down made-up answers so that it looks like the homework assignment was done. I can tell the difference. The homework assignment that receives credit is the one that is done with effort, time and care. I suggest you view homework as an important time to practice the material, learn the material, and determine if you need help with the material. Homework is what you do to help yourself learn.

**Late to Class Policy**

Students are expected to arrive on time. Arriving late is disruptive to learning. Since we will start every class with a Warm-up exercise, if you are late, you will not be able to participate in the Warm-up, in which case you will receive a zero for any Warm-up you miss due to arriving late.

If you arrive late with a pass/note, then you will be marked with an “Excused Tardy”. If you arrive late WITHOUT a pass/note, then you will be marked with an “Unexcused Tardy”. **School policy states clearly that you will lose 5% points from your quarter grade for every 4 “Excused Tardies”. If you accumulate 8 “Excused Tardies”, then you lose 10%.** Once you have accumulated 5 or more “Unexcused Tardies”, then you are required to have a truancy meeting with Ms. Smith.

If you are late, please be thoughtful and enter quietly. If you are late, then you should have an official pass/note from a teacher or staff member. If you arrive late without a pass/note, then you loose 1 Participation point. If you arrive late without a pass/note and you miss the Warm-up exercise, then you loose 1 Participation point.

**Dress Code Policy**

**Shirts:**All 9's and 10's must have on a collared shirt with a school logo. All 11's and 12's must have on a collared shirt that is solid white, navy or Oxford blue, or grey. Juniors and seniors may also wear the school shirts. Denim shirts are not allowed.

**Pants:** All students must have on solid, khaki-colored pants with no rips.

**Outerwear:** Students may wear solid navy blue or grey sweaters, fleeces, hoodies, or sweatshirts. There can be no logos except a small product logo like North Face, etc. College sweatshirts are not allowed unless they fit the previous rules. WLPCS sweatshirts and WLPCS athletic jackets are fine but school shirt must be underneath.

**Shoes**: Sport sandals are not allowed.

**Leggings** worn under skirts must be a solid, dark color.

**Bathroom & Water Policy**

You should NOT leave the classroom during class time to use the bathroom (accept in the RARE case of an emergency). If you get thirsty often, then it is your responsibility to have a filled water bottle with you.

**Seating Policy**

We are a community of learners, so each of us is responsible for respecting others and doing our part to help make learning a comfortable and successful experience. I will determine the student seating arrangement that serves to achieve this goal. The seating arrangement is intended to keep the class atmosphere positive, calm, quiet and conducive to learning. You are responsible to sit in your assigned seat each day. If you have a personal issue with a fellow student or with the location of your seat, then please let me know in private, and I will do my best to accommodate you. I cannot promise that you will be able to sit exactly where you want.

**Cell Phone Policy**

I imagine that you understand that the school “cell phone in the pocket” policy is in your best interest as a student. I believe you want to learn and you understand that removing the distraction of your cell phone is necessary to achieve your goal of doing your very best academically. I expect you to place your cell phone in its designated pocket as you walk in the room and before you sit down. Placing your cell phone in its pocket is your responsibility to do, not my responsibility to remind you or ask you every day. Once the clock has struck the starting time, your cell phone should already be in its pocket. If I have to ask you to put your cell phone in its pocket, you have already lost a participation point.

**Grades Discussion Policy**

Your progress and success is extremely important to me, and I want you to do the very best you can do. I am always happy to discuss your progress and performance in my class. Please feel free to approach me during breaks, lunch or tutorial periods to discuss these matters (not during class time).

**Communication**

I’m sure you understand that communication is critical in any relationship. Please know that I am always happy to hear what’s on your mind, what you are happy about or what you are concerned about. If something is on your mind and you want to talk about it, I want to hear from you. Please find me during a break, lunch or tutorial time and let me know that you want me to listen. If I can help, then I certainly will do my best.

**WLPCS Calculus Syllabus & Policy Details - Mr. Michael T. Davis – 2017-18**

**Student-Parent Policy Agreement/Signature Page**

By signing below, I, the student, acknowledge the following:

* I have read Mr. Davis’ syllabus.
* I understood the expectations and policies for Mr. Davis’ Calculus class.
* I agree to abide by and follow the policies, requirements, and procedures stated in the syllabus.
* If I need help with any material, I will attend math tutorial 3:15-3:45.
* I will be responsible, respectful, and positive.
* I will use class time for learning math, not for socializing with friends.
* I will stay organized, focused, and maintain an open mind.
* I will do all assignments to the best of my ability.
* I will participate in class.
* I will exert a daily honest effort to learn the material.
* I understand that this sheet is worth 20-point quiz grade, and I will receive a zero if not completely filled out and turned in by Monday, August 28, 2017.

Student Name Printed Neatly: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

By signing below, I, the parent or guardian, acknowledge the following:

* I have read Mr. Davis’ syllabus
* I understood the expectations and policies for Mr. Davis’ math class.
* I will help my student to abide by and follow the policies, requirements and procedures stated in the syllabus
* I understand that this sheet is worth 20-point quiz grade, and my student will receive a zero if not completely filled out and turned in by Friday, August 26.

Parent/Guardian Name Printed Neatly: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Best Phone Number to Reach Parent/Guardian: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian Email Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_